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TENTH INTERNATIONAL MEDICAL CONGRESS

WHAT IS ORTHOPÆDIC SURGERY?

READ BEFORE THE ORTHOPÆDIC SECTION OF THE TENTH INTERNATIONAL MEDICAL CONGRESS, BERLIN, AUGUST 5, 1890

BY

NEWTON M. SHAFFER, M.D.

ATTENDING SURGEON IN CHARGE OF THE NEW YORK ORTHOPÆDIC DISPENSARY AND HOSPITAL, CONSULTING ORTHOPÆDIC SURGEON TO ST. LUKE'S HOSPITAL, NEW YORK

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WHAT IS ORTHOPÆDIC SURGERY? *

THE recent action of the Orthopædic Section of the New York Academy of Medicine in appointing a committee to secure for orthopædic surgery an official recognition by the Tenth International Medical Congress has been successful. Orthopædic surgery is placed, by this act, upon the same plane with the other special branches of medicine and surgery, and an important duty is imposed upon those who will assemble in Berlin to participate in the proceedings of this newly created section. It would seem, from the many replies which have been received by the committee in response to the circular-letter which was sent to those interested in orthopædic surgery, that there exists a very general desire to aid this important department of surgery. Over one hundred replies have been received from English, Continental, and American surgeons. With a few exceptions the replies have been favorable to the views and wishes of the committee.

Of those who have expressed doubts as to the advisability of creating a special section of ortho-

* Read before the Orthopædic Section of the Tenth International Medical Congress, Berlin, August 5, 1890.

pædic surgery at the Congress, some have plainly said that this special section was not necessary; others have stated that in certain localities the treatment of deformities was influenced by a class of men who were not regularly educated surgeons, while others again see difficulty in drawing the line between general and orthopædic surgery.

These facts raise some important questions which, it seems to the writer, should be discussed by the members of the orthopædic section at its first meeting in Berlin; and the remarks that I have the honor to present have been suggested by the evident differences of opinion that exist regarding the status of orthopædic surgery. And the writer desires to state that the opinions here expressed are his personal views only, and that the committee appointed by the Orthopædic Section of the New York Academy of Medicine (of which the writer has the honor to be a member) is in no way responsible for them.

It seems unnecessary on this occasion to consider orthopædic surgery from a, strictly speaking, historical standpoint. A few historical facts may be mentioned, however, which bear upon the rise and progress of the treatment of deformities.

From the time of Andry, the word "orthopædic" has been identified with the treatment of deformities, and an "orthopædist" has been one who treated deformity. But it was not until Stromeyer, in 1830, demonstrated the feasibility and the value of subcutaneous tenotomy, that "orthopædics" obtained its first firm foothold in the profession. Both before and after Stromeyer's time, however, mechanico-therapy

was the fundamental part of the treatment of deformities. The introduction of subcutaneous tenotomy and of subcutaneous myotomy supplemented the treatment of deformity by mechanical means. Subcutaneous surgery did not dispense with the mechanical element of treatment; it rather emphasized its value and necessity. And it is fitting that we should note that the first great advance in orthopædic surgery occurred in Germany, under the influence of Stromeyer's teachings, and that his methods soon became recognized and practised in all parts of the world.

The status of orthopædic surgery in 1844, about fourteen years after Stromeyer's methods were introduced, is very clearly shown by the essay[1] of Dr. Henry J. Bigelow upon orthopædic surgery. In this work Dr. Bigelow quotes largely from Stromeyer, Guerin, Bonnet, Velpau, Phillips, Duval, Deiffenbach, and Little. The subjects treated by Bigelow, in addition to club-foot, lateral curvature of the spine, torticollis, etc., include both stammering and strabismus. The operation for the last-named condition has long since been recognized as belonging to the special department of ophthalmology, while the former was long ago abandoned. It seems clear, however, from Bigelow's essay that, at the date he wrote, orthopædic surgery, so far as operative treatment is concerned, was synonymous with subcutaneous tenotomy and subcutaneous myotomy, and that any condition requiring either of

[1] "Manual of Orthopædic Surgery." The Boylston Prize Essay for 1844; published, in 1845, in Boston.

these operations was to be classed under orthopædic surgery.

A few years later, or about 1852, an American surgeon, Dr. Henry G. Davis, published his essay, in which he advised the use of elastic traction by means of a portative apparatus in the treatment of hip-joint disease. He also demonstrated the value of traction apparatus for overcoming the deformities occasioned by chronic articular lesions. The treatment of Pott's disease by means of the antero-posterior spinal apparatus was also demonstrated by Dr. Davis and Dr. C. F. Taylor, and the subject of the mechanical treatment of chronic joint and spinal disease received a marked degree of attention from the surgeons of the United States especially.

In this field Dr. Lewis A. Sayre and Dr. Charles Fayette Taylor became very conspicuous. They amplified Dr. Davis' apparatus, and devised many forms of apparatus for the treatment of chronic and progressive deformities, and under their leadership the treatment of chronic joint and spinal disease became a distinctive feature of the American School of Orthopædic Surgery, and another era in orthopædics, second only to that of Stromeyer, was inaugurated.

Up to about 1870, or thereabouts, it would therefore appear that two important factors had aided in placing orthopædic surgery upon a satisfactory basis: First, the introduction of subcutaneous surgery by a German surgeon; and secondly, the introduction of the portative traction method of treatment of chronic joint disease by an American surgeon. Of the for-

mer it may be said that subcutaneous surgery is rarely used in the treatment of chronic deformity without after mechanical treatment, which after mechanical treatment is oftentimes more important and essential than the cutting operation, and special skill and training are often required to apply it successfully. Of the latter we may safely say that it is not until the mechanical treatment has proved inefficient that cutting measures are, as a rule, thought of, and that when cutting measures are deemed necessary the after treatment calls for little else than simple surgical dressings, which do not demand a special orthopædic training to apply. The introduction of the traction splint in the treatment of chronic joint disease, as well as the introduction of the antero-posterior splint for Pott's disease, enlarged the field of practical orthopædics very much. "Preventive" surgery, the highest aim of surgery, became an important factor in the treatment of this class of chronic deformities. By the judicious use of traction apparatus, portative or otherwise, deformity can be prevented, and in many cases the disease producing the deformity can be arrested. And even after the deformity of chronic articular disease has become pronounced, it can, in many cases, be overcome or greatly modified without any cutting operation. Indeed, the tendency of orthopædic surgery has always been toward conservatism. Its principal victories have been won in this field, and it would seem to be a great error to lose sight in any way of the principal factor which has contributed so largely to its present position.

Up to this point, or about 1870, it will be seen that

orthopædic surgery had not invaded the field of general surgery. Availing itself of all that contributed to the relief of deformity from its conservative standpoint, it found many difficult problems which it did its best to master. It took hold of and cared for a much neglected class of humanity—a class that had long been neglected by the profession at large. Even at this day the general surgeon, as a rule, cares but little for orthopædic work. He is fully occupied in a large field which is every day becoming more exacting—while the orthopædic surgeon is devoting himself to a department which has none of the brilliancy of operative surgery; which requires much patient attention to mechanical detail; which demands special facilities for altering and modifying apparatus, and a special training and education which very few surgeons have received.

It is not many years ago, however, that general surgery began to invade the domain of orthopædic surgery. This is especially true since the Lister method has become so universally accepted. The knife, the saw, the chisel, and the osteoclast have become potent factors in the reduction of obstinate osseous conformities. Knock-knee, bow-legs, old and obstinate cases of club-foot, and other conditions are relieved by the direct surgical method, without special after-treatment except simple surgical dressings. This marks another era in the treatment of deformities, and is a legitimate advance in *general surgery*. And it was about this time also that joint resections began to attract the marked attention of surgeons of the United States.

To some orthopædic surgeons these innovations of general surgery have proved a stumbling-block. They diverted the attention from the hard and rugged paths of orthopædic work *per se*, to the brilliant work of the general surgeon. I know myself that the allurements of the operating table are very great, for about this time I had my own attack of "surgical fever," which, I am happy to say, proved a self-limiting fever of comparatively short duration. But it raised the questions then, as it raises them now—Where shall the line be drawn? What is orthopædic surgery? Shall orthopædic surgeons be general surgeons as well, and shall general surgeons be orthopædists? If these questions are answered in the affirmative, there is no room for a special orthopædic section in the Berlin Congress.

Reference has already been made to Bigelow's work, published in 1845. If we compare it with Sayre's work on "Orthopædic Surgery and Diseases of the Joints," published in 1876, or with Bradford and Lovett's work on "Orthopædic Surgery," published in 1890, we will see that the tendency of modern orthopædic surgery is to invade the field of general surgery. Bigelow's work teaches subcutaneous tenotomy and myotomy plus special mechanical treatment, and nothing more. It does not mention diseases of the joints or Pott's disease of the spine. It deals with the subject of the mechanical treatment of chronic deformity in a meagre way, a subject which is full of brilliant promise in the future. It suggests a field which has never been fully developed, and which rests with orthopædic surgery to develop,

viz., complete and scientific methods of mechanical treatment, which, when fully developed, will represent as much of real value to the human race as general surgery itself. It already represents a great deal, especially in the mechanical treatment of chronic joint and spinal disease, for since orthopædic surgeons have done so much to render plain the early diagnosis of joint and spinal diseases, mechanico-therapy can prevent the occurrence of deformity, and can frequently arrest the disease in its first or non-deforming stage. And still more, when the articular disease has advanced and pain is present, or when deformity is progressive and abscess is about to form, or has already formed, mechanico-therapy, properly understood and applied, can hold out to the sufferer more than the operative or general surgeon. In the field of chronic articular disease alone there is enough to do, and enough for the orthopædic surgeon to learn, without invading at all the field of general or operative work.

Let us see the position Sayre takes in 1876. His work, already mentioned, covers, generally speaking, the conditions treated by Bigelow in 1844, and adds to the list "diseases of the joints." This is to be expected, for the author's greatest reputation is based upon his experience in the treatment of joint and spinal diseases. He is especially strong in his description of joint and spinal conditions, ample attention being given to diagnosis and prognosis. He devotes much space to excision of the joints. The great strength of his work, however, lies in its orthopædic part, or in the description of deformities

and their mechanical treatment. The work is one of the pioneers in an important field, Dr. Louis Bauer having covered somewhat the same ground a few years before. The part of the work that is of the least value *per se* is the part which treats of joint excisions, for the reason that the subject is well considered and amply discussed in contemporary surgical literature. While the part which dwells upon orthopædic surgery is novel, interesting, and, in its way, classical.

Bradford and Lovett, in 1890, group all deformities under one head of "orthopædic surgery" and reject the qualifying title of "diseases of the joints" adopted by Sayre. In addition to the conditions treated by Bigelow and Sayre, we find these authors include several new titles. Among them are the "cerebral paralyses of children," pseudo-hypertrophic paralysis," "Dupuytren's contraction," "webbed fingers," and "functional affections of the joints." They extend the surgical aspect of the treatment of deformities and give a large portion of their work to resection of the joints, amputation at the hip joint, laminectomy, osteotomy, osteoclasis, etc. It seems unnecessary to call attention to the excellent and thorough way in which the, strictly speaking, orthopædic part of the work is executed. It is rather the object of the writer to call attention to the unnecessary invasion of the field of general surgery, in a special treatise on orthopædic surgery, when the purely surgical aspect of the conditions named is amply covered in the current surgical literature of the day.

None of the writers I have referred to define orthopædic surgery in their works, and the definitions

given in the various dictionaries are familiar to us all. I have found none that seems sufficiently definite, or that covers the ground from the standpoint of modern orthopædic surgery. Under these circumstances, I found myself, several years ago, called upon to define orthopædic surgery, by the class at the University Medical College, at a time when I was connected with the College, and I then ventured upon the following definition[1]: "Orthopædic surgery is that department of general surgery which includes the mechanical and operative treatment of chronic and progressive deformities, for the proper treatment of which specially devised apparatus is necessary." I would modify this definition to-day so that it would read as follows: "Orthopædic surgery is that department of surgery which includes the prevention, the mechanical treatment, and the operative treatment, of chronic or progressive deformities, for the proper treatment of which special forms of apparatus or special mechanical dressings are necessary."

No one doubts, myself least of all, that the orthopædic surgeon should be, from the standpoint of education, a surgeon in every sense of the word; that he should be a well-educated medical man, with ample clinical experience, before he enters the field of specialism. In short, it seems to the writer that the orthopædic surgeon should take a step *in advance* of the general surgeon, and that his education should include all that is necessary to make a general surgeon, before his study of mechanico-therapy is com-

[1] "The Present Status of Orthopædic Surgery," *New York Medical Journal*, January 26, 1884.

menced. As one thus equipped enters the field of orthopædic surgery he will, if he is wise enough to resist the temptation to become an operative surgeon, find many valuable mines to be explored, and much to be learned that is as yet untouched by any writer. And he will find ample work without invading the field of the general surgeon, just as he will find in all parts of the civilized world very many surgeons who are amply qualified to perform all the operations of surgery, and but very few who can intelligently devise and apply apparatus in the various and varying conditions of chronic deformity.

The needs of orthopædic surgery are clearly shown when we appreciate how thoroughly general surgery is taught in all the universities and colleges, while on the other hand mechanico-therapy—a very wide and important field—is too apt to be totally ignored. The result is that the work that should fall into the hands of the educated surgeon is relegated to the commercial instrument maker. We have only to look at the barber-pole of to-day to recall the position of surgery in former years, and it is not impossible that in a few years the opprobrium that attaches to mechanico-therapy will become a thing of the past, and that we may have a class of surgeons interested in orthopædic work, who will be orthopædic surgeons in the strictest sense of the word.

From the standpoint here taken, and as a matter of experience, it seems to the writer that the invasion of the field of general surgery by the modern orthopædist is unnecessary and uncalled for. It further seems to the writer that it can only bring discredit

upon a new and important field of work—which is even further removed from general surgery than ophthalmology or laryngology. This invasion will direct the attention of the profession to the weak point in the armament of those who combine general surgery with orthopædic work, and it will, if persisted in in the future, break down the lines between it and general surgery. The remark of a prominent general surgeon to the writer, after reading the latest work on orthopædic surgery, is not, perhaps, so much out of place. He said : " The next work on orthopædic surgery will likely tell us all about fractures and dislocations." The fact that the plan here proposed will necessarily limit the operative work of the orthopædist does not lessen either the importance or the honor of the work that lies before him. Operative surgery has its own place, and in orthopædic work that place should be second ; and operative surgery should be used by orthopædists only as it supplements mechanico-therapy. Orthopædic surgery is as yet in its infancy, and needs men with strong heads and strong hearts, men who are willing to work and study and wait, and to those who do this there will be, I am sure, an ample reward.

And looking at the subject from the standpoint of our meeting here in Berlin, we may learn another lesson. The only possible excuse for the foundation of a special section of orthopædic surgery at this Congress is the rapid rise and development of Mechanico-therapy, especially in the United States. There would be no true orthopædic surgery to-day, if mechanico-therapeutics had not been studied long and

patiently by a comparatively small body of intelligent surgeons. And if the committee who addressed their petition to the Congress asking recognition, had relied upon the record of orthopædic surgery in the field of joint resections, amputation at the hip joint, laminectomy, osteotomy, etc., I fancy that the committee would have been referred, and rightfully so, to the section of general surgery.

In closing my remarks, I feel that I ought to state that the conclusions reached in this paper are based upon an experience of nearly thirty years in orthopædic work.

In 1873, I found myself in charge of the orthopædic service of St. Luke's Hospital, with no restrictions as to the operative work of my own department. I soon found that the purely surgical aspect of the work was very attractive, and that my interest in the patients under my care was gauged by their present or prospective operative value—and that the conservative or orthopædic side of the work was becoming less interesting. After mature reflection, it became apparent that the operative field was well represented in the eminent surgical staff of the hospital, and that it was clearly my duty to develop and establish the principles of orthopædic surgery. After reaching this conclusion I voluntarily turned over to my colleagues all the purely operative work which required no orthopædic treatment after operation, and from that time up to the day of my resignation I operated only on those cases which would necessarily remain under my care after operation. Soon after my appointment as surgeon in charge of the New York

Orthopædic Dispensary and Hospital, an attempt was made to combine a general surgical staff with the orthopædic work. At first it seemed to be just what was needed, and while questions of jurisdiction were sometimes raised, there was no conflict between the surgical and orthopædic departments. The real difficulty appeared later, when it was found that the junior medical officers seemed to lose their interest in the orthopædic work, while they were very active in the purely surgical work. The hospital was gradually becoming a surgical hospital rather than an orthopædic one. It became apparent to the trustees after a while that the institution was drifting away from its avowed object. After a time the surgical staff retired, and since that time the institution has been a strictly speaking orthopædic one.

As the medical officer in charge of the New York Orthopædic Dispensary and Hospital, and having absolute control of its surgical policy, I have for several years—and since the retirement of the active surgical staff—operated only on those patients who required special orthopædic care after operation. All other cases requiring surgical operation have been referred to some general hospital; and I have pursued the same course in my private practice—that is, I have referred all patients requiring surgical operation, who have not demanded special orthopædic care after operation, to a general surgeon. And this, I believe, is the proper position for the orthopædic surgeon to take. During my service at St. Luke's Hospital, it was made apparent very soon after my appointment that the resident house staff took little or no interest

in the orthopædic ward. Their interests, as young and recently graduated men, were in general surgery and general medicine. Aside from this, though they were all picked men, very few of them seemed to possess the mechanical ability which is an essential element of success in orthopædic work. After a few years' effort to keep the house staff interested, an effort which failed, I was obliged to ask the hospital authorities for a special assistant.

At the New York Orthopædic Dispensary and Hospital it has sometimes been difficult to secure the attention of the junior staff during a period long enough to fit them for future orthopædic work. At the end of six months or a year they may regard themselves as fully equipped orthopædic surgeons. On the other hand we have had able men as assistants whose college and competitive examination records were high, whose mechanical instincts were lacking. These men were clearly out of place in orthopædic work. My experience proves that it requires an exceptional man to succeed in orthopædic practice. If he possesses mechanical tastes and ability, and devotes himself to orthopædic work for a sufficient period, he will almost surely succeed in reaching a high place. But if he attempts at the same time to do the work that would naturally fall to the general surgeon, he will, sooner or later, become the latter in effect, if not in name. And if he does not possess, in a high degree, an educated appreciation of the various and complex mechanical problems which will constantly confront him in daily practice, he will very likely turn to operative

measures when there may be no need for such a step.

Nor can any one expect to equip himself as an orthopædic surgeon in a short time. After graduation, and a term of service as an *interne* in a hospital, a course of study covering at least five years (including a wide clinical experience in dispensary and hospital work) should be demanded of those who expect to become orthopædic surgeons. Orthopædic surgery lies wholly within the domain of "chronic" surgery. The junior medical officers in large general hospitals see but little of this class of surgery. On the other hand they acquire during their hospital residence a wide experience in "acute" surgery. No one can acquire a safe clinical experience without a prolonged study of many cases; and in the chronic joint department of orthopædic surgery, one may wait several years before seeing the end of one's first case.

A great deal will be expected of the orthopædic surgery of the future, and it seems to the writer that the sooner the followers of orthopædic surgery realize that it has enough in itself to sustain its well-earned reputation without encroaching upon other grounds, the better it will be for orthopædy. I feel a natural embarrassment in thus presenting my views, but I also feel that it is a duty which the present occasion demands; and if my remarks are regarded as embodying the conclusions of one who desires to see orthopædic surgery occupy the high place it deserves, I shall be wholly satisfied; and if they aid at all in solving the question which heads this paper, I shall be content.